

Fig. 1

12

# Random Access Memory Operating 30 System C-Program 32 High Level 32a Instructions Machine Code 32b Array



Fig. 2 LAR 15 2000

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DESCRIPTIONS
DESC

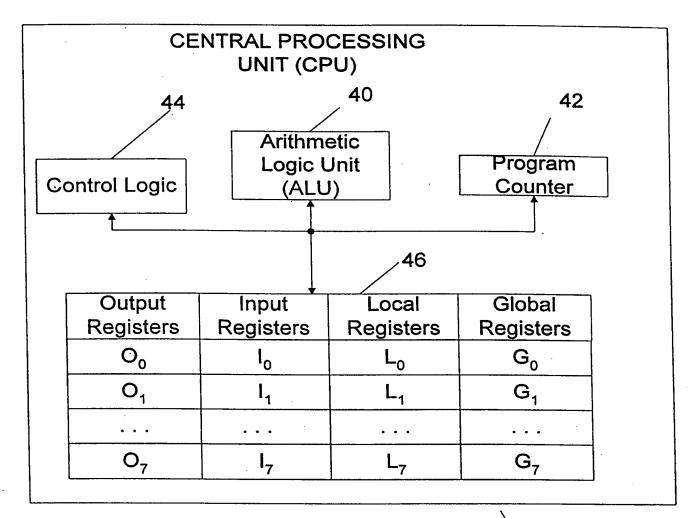


Fig. 3

14

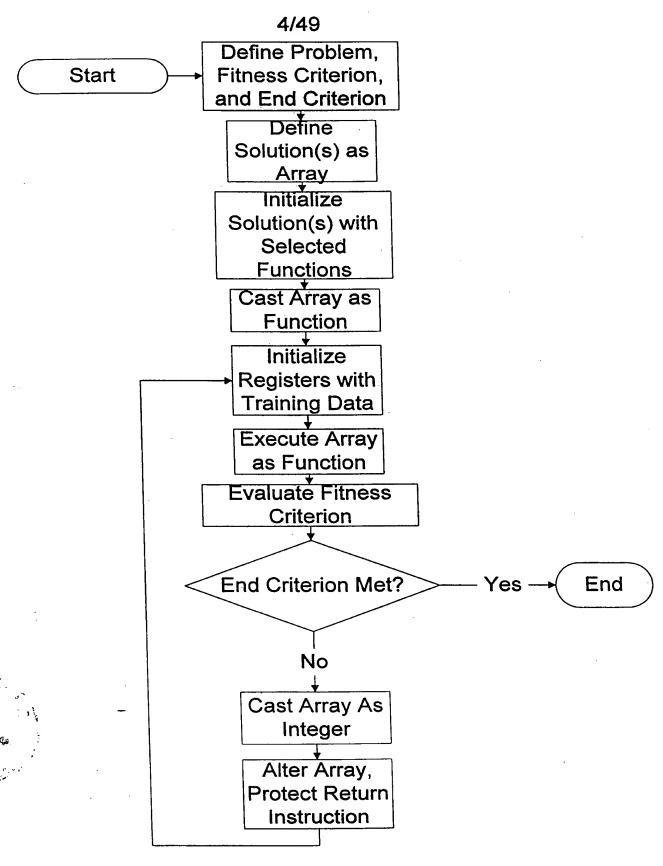


Fig. 4

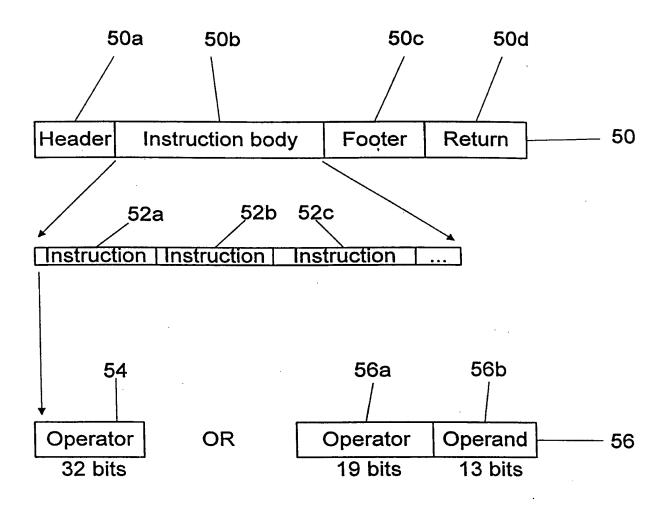


Fig. 5

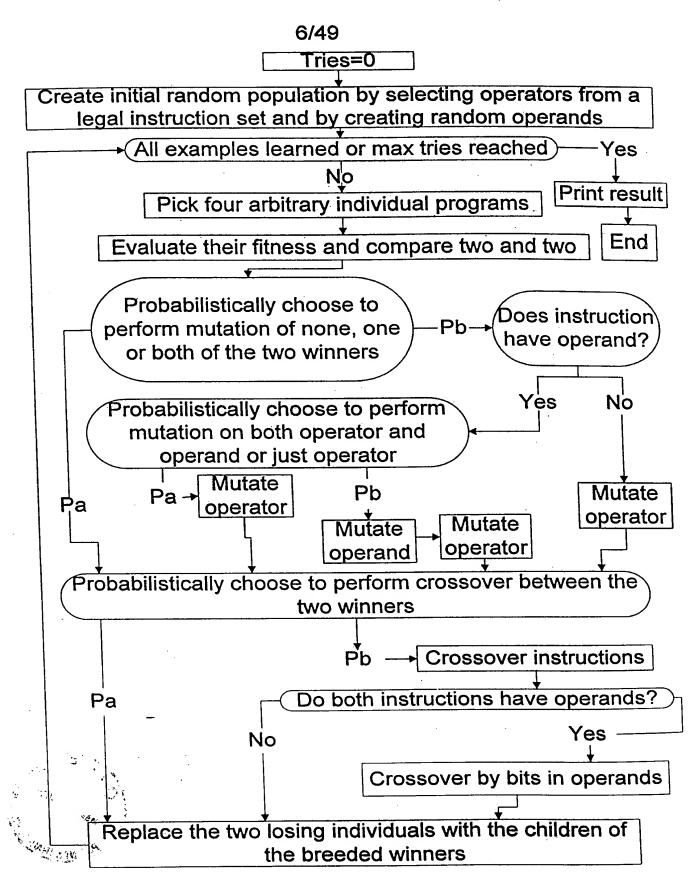


Fig. 6

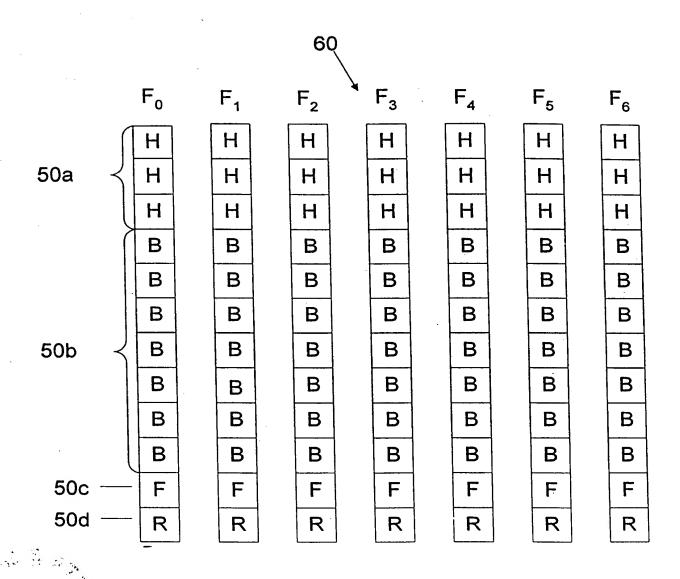


Fig. 7

Fig. 8

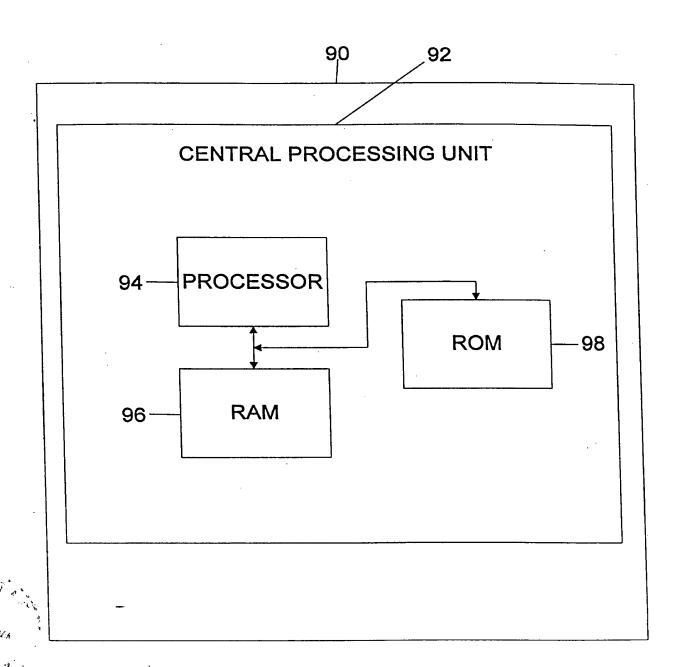


Figure 9

**Parents** 

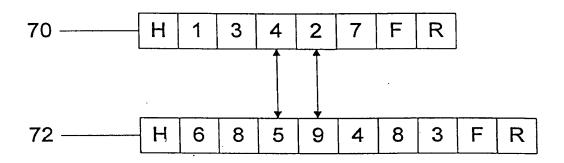


Fig. 10a

## Children

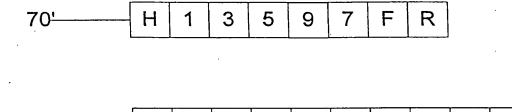


Fig. 10b

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### **Parents**

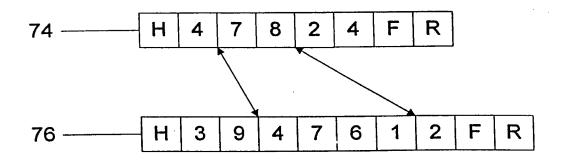
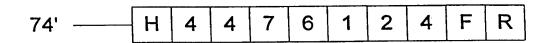
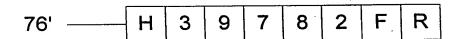


Fig. 11a

### Children





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Fig. 11b

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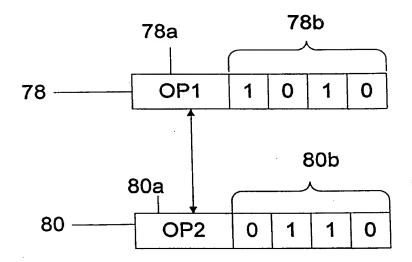


Fig. 12a

## CHILDREN

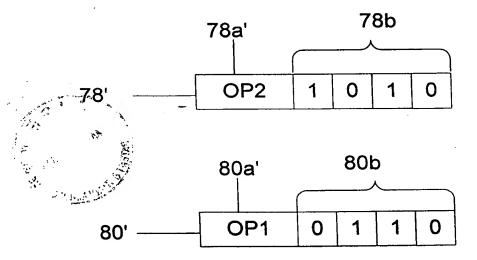


Fig. 12b

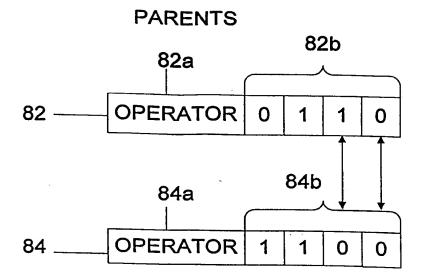
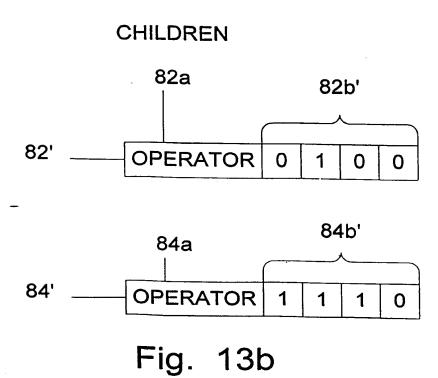


Fig. 13a



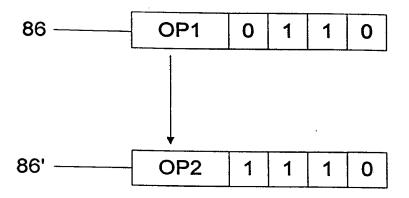


Fig. 14

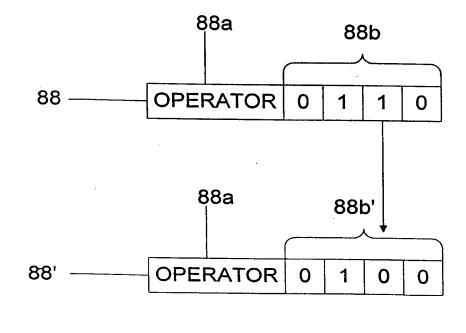
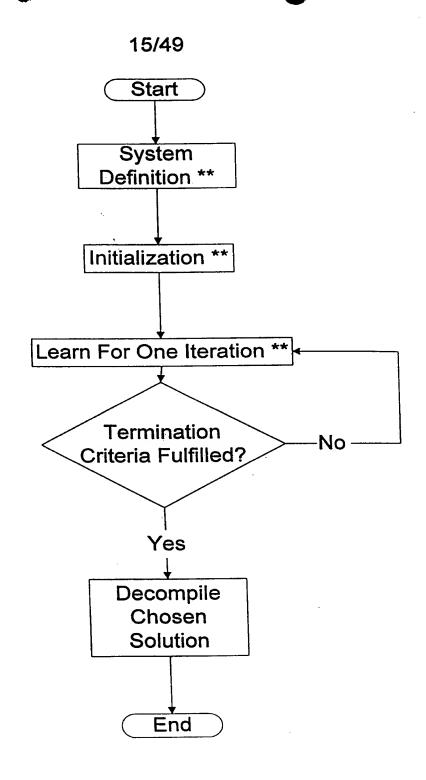
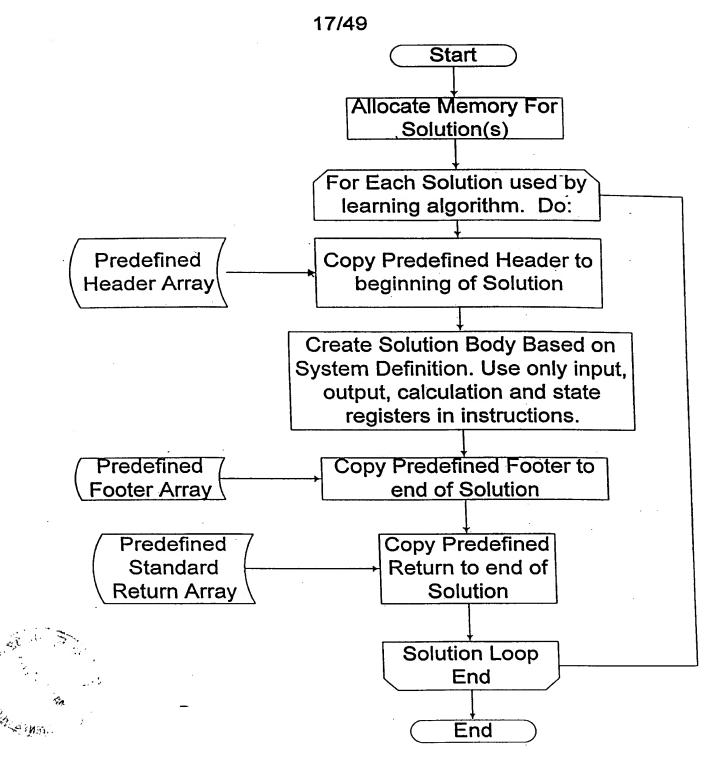


Fig. 15



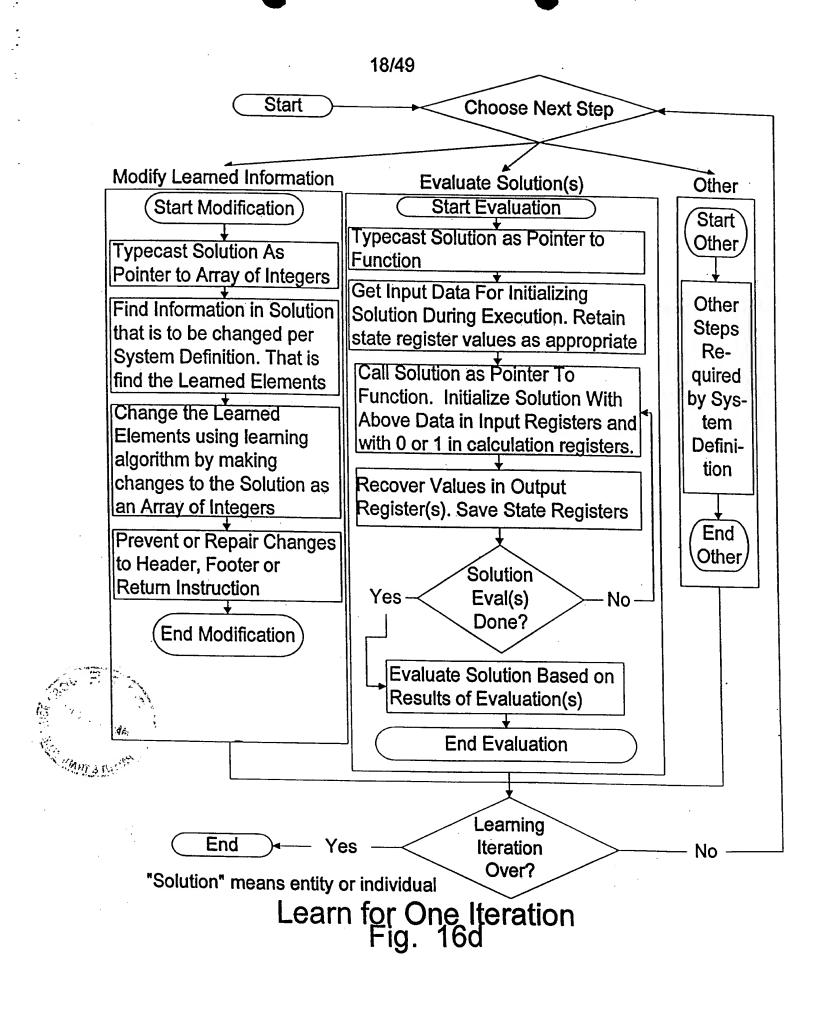
General Operation of the System Fig. 16a

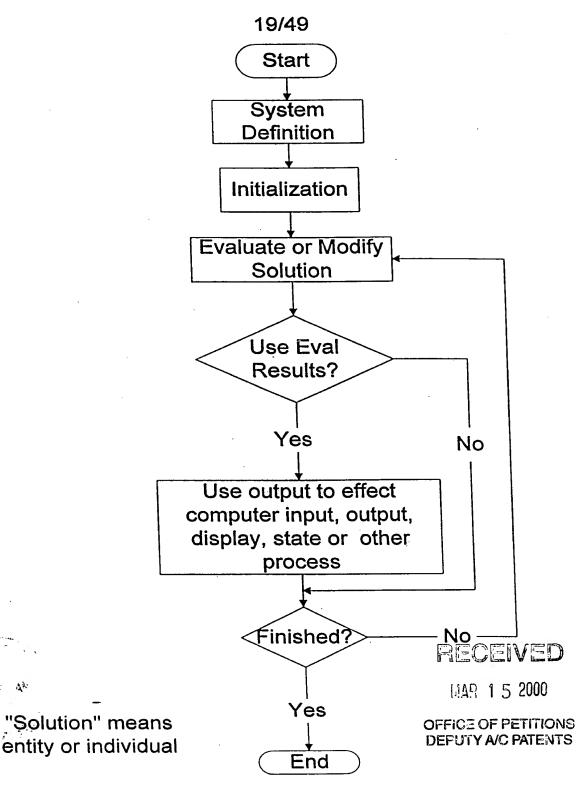
Choose a learning algorithm. Start Define Problem, fitness criterion and termination criterion Define the machine code structure that is appropriate for the problem and the learning algorithm to be used and that encodes the Learned Elements and the Conversion Elements into machine code. Specify the input, output, calculation and state registers. Determine which portions of the machine code are to be changed by the learning algorithm and which portions are not. That is, locate the Learned Elements in the machine code. Determine what changes may be made to what portions of the machine code are per the chosen learning algorithm. Create Header as Array of Integers consistent with above Create Footer as Array of Integers consistent **Stored** with above data Create Standard Return Instruction as Array of Integers consistent with above Create Leaf Procedure Return Instruction as Array of Integers consistent with above End **Details of System Definition** Fig. 16b



Initialization Fig. 16c

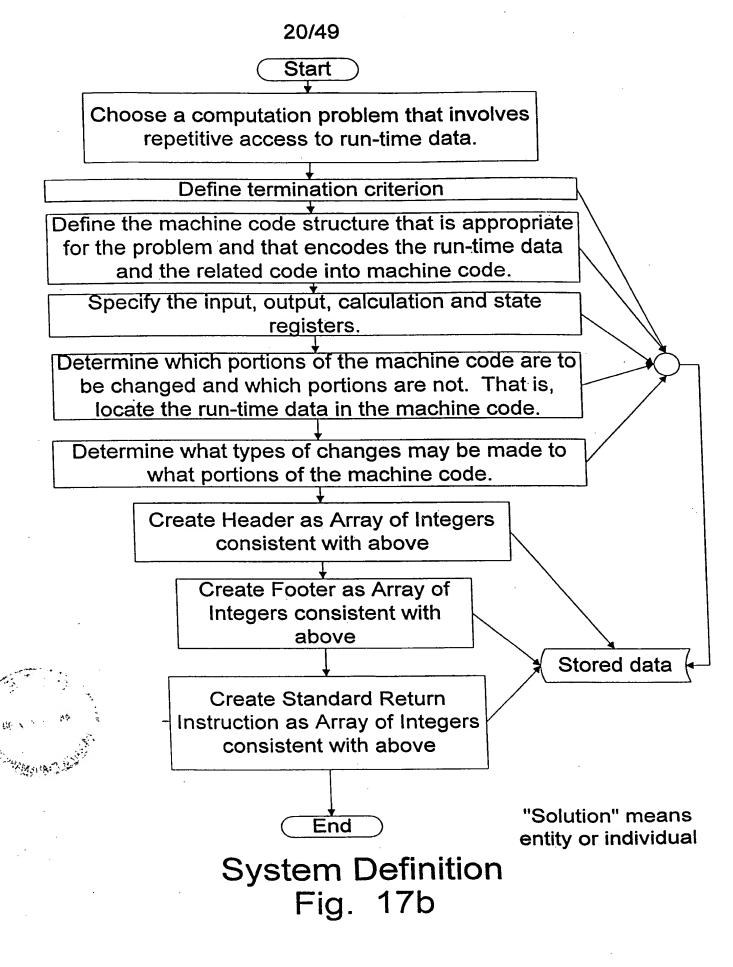
"Solution" means entity or individual

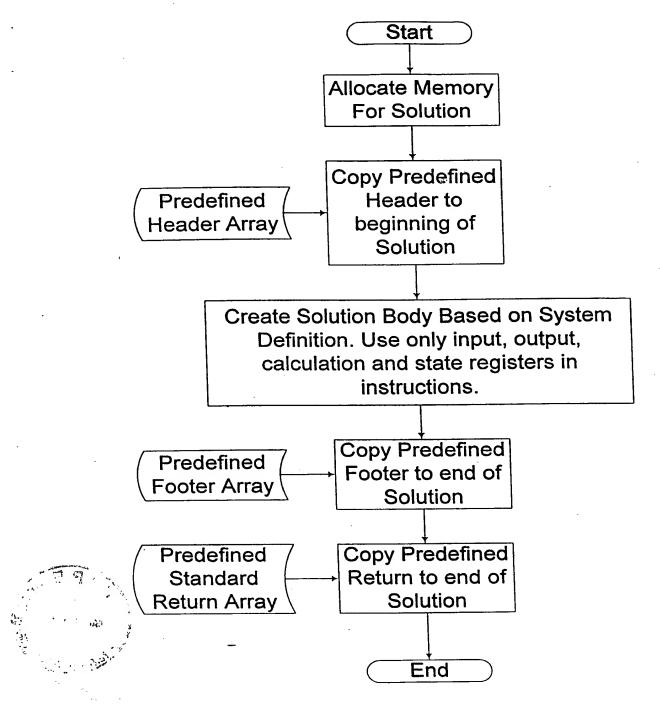




General Operation of the Invention As Repetitive Computation System

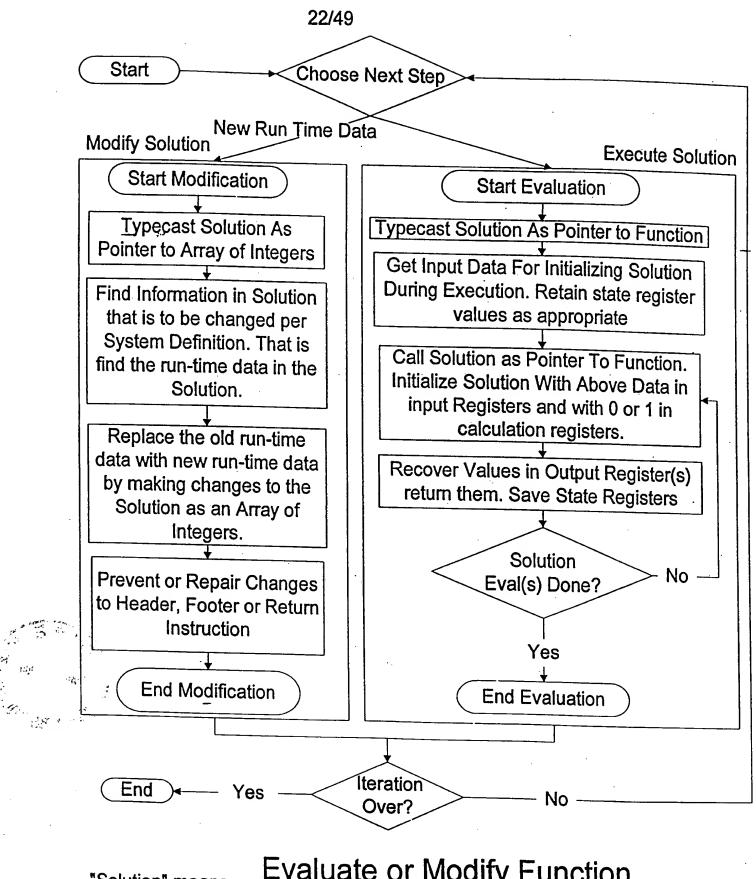
Fig. 17a





Initialization Fig. 17c

"Solution" means entity or individual



"Solution" means entity or individual

Evaluate or Modify Function Fig. 17d

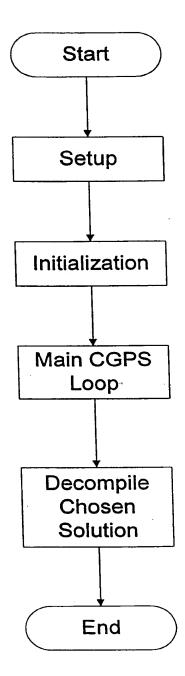
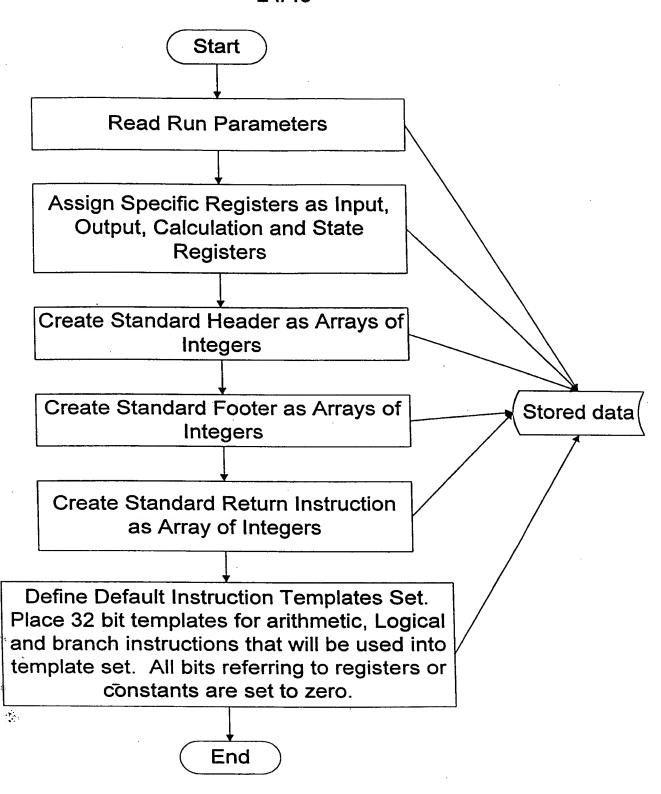
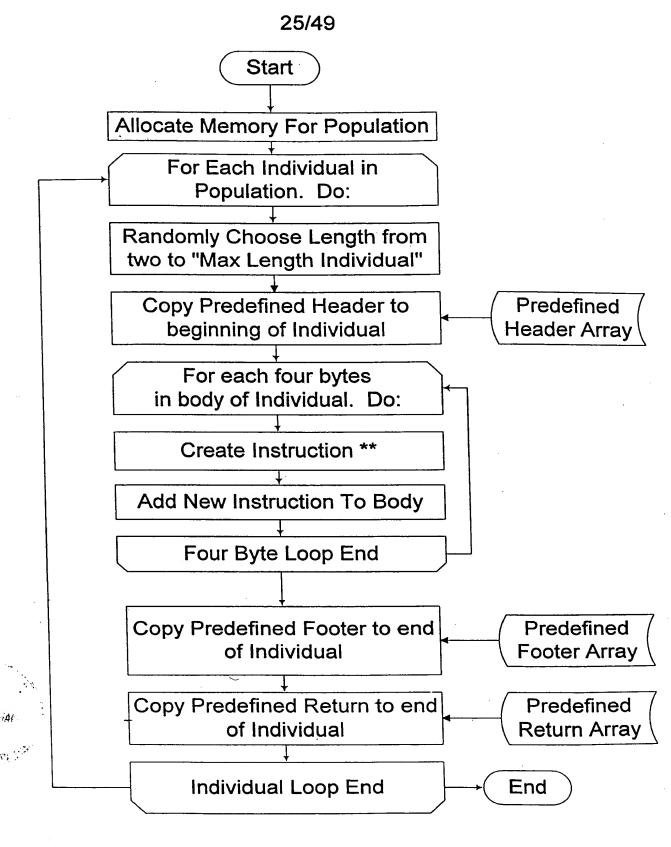


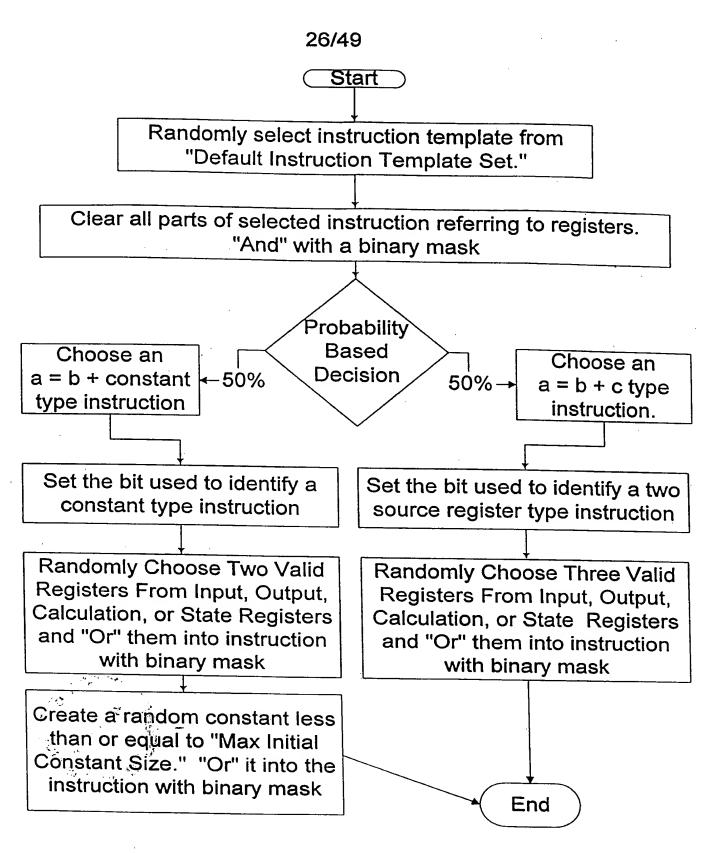
Fig. 18a



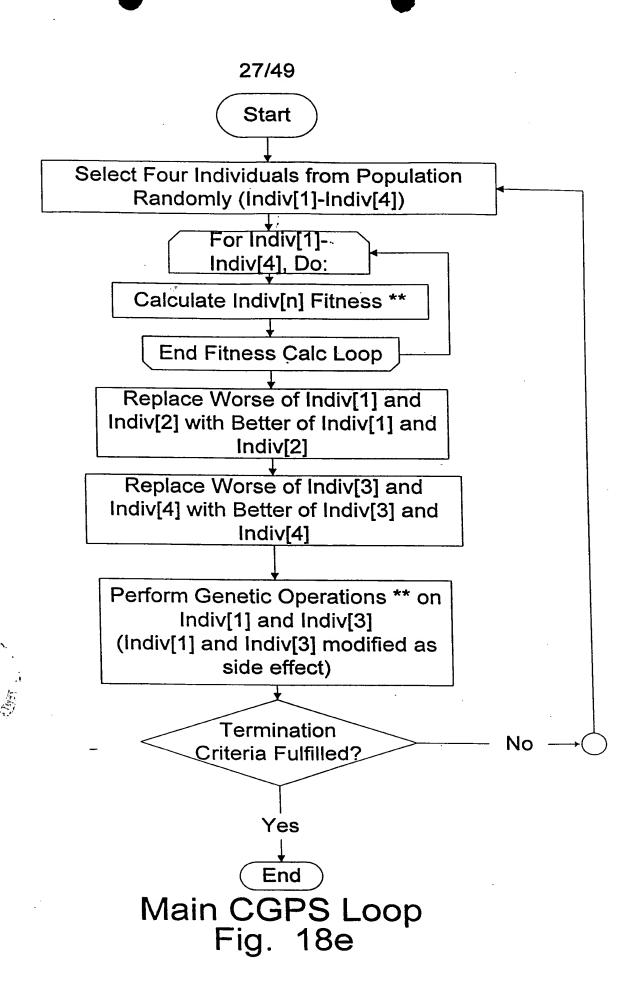
Setup Fig. 18b

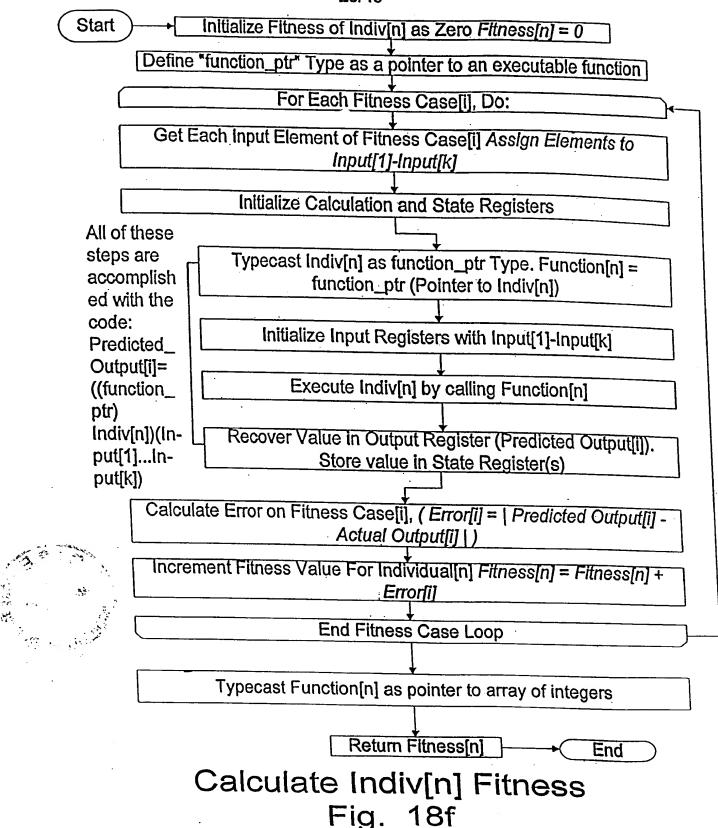


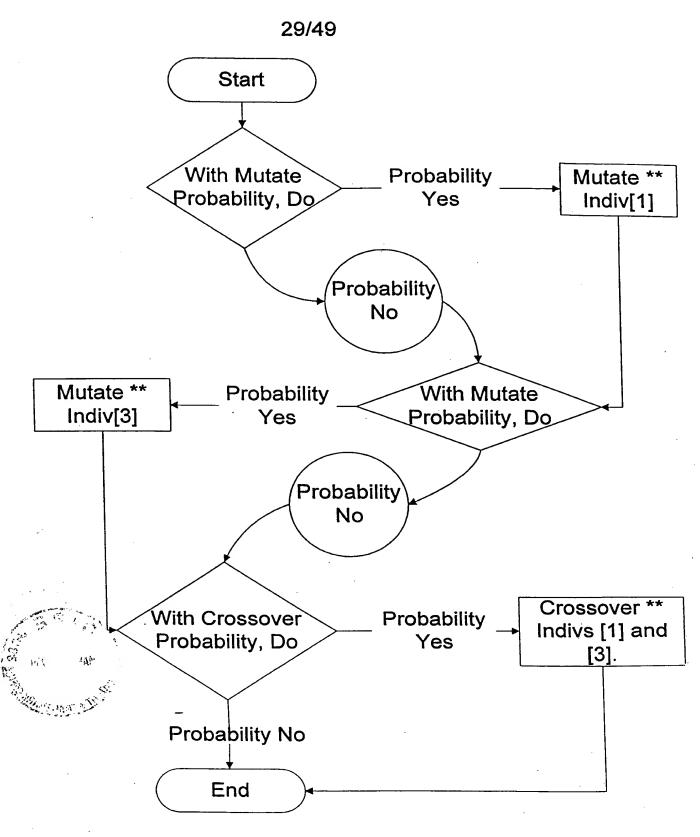
Initialization Fig. 18c



Create Instruction Fig. 18d







Perform Genetic Operations Fig. 18g

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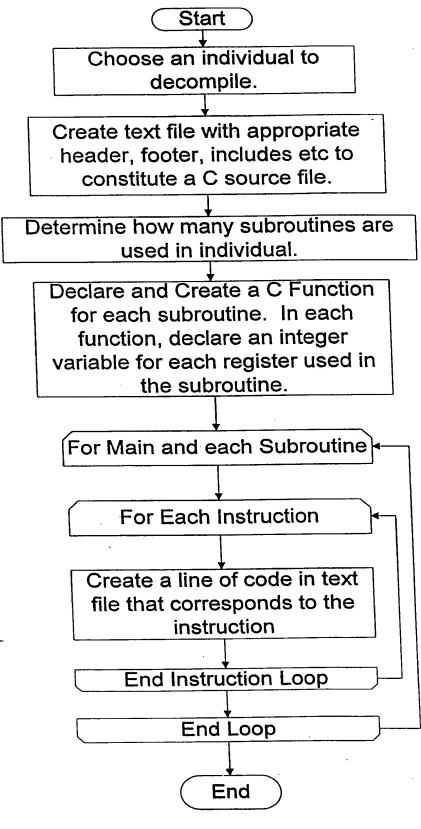


Fig. 18h

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	$F_0$	F <sub>1</sub>	$F_2$	F <sub>3</sub>	$F_4$	F <sub>5</sub>	F <sub>6</sub>
Main	H H B B B B F R	HHHBBBBBBLR	H H H B B B F R	H H B B B B F R	H H H B B F R	н н ш ш ш ш ш ш ш ш ш ш ш ш ш ш ш ш ш ш	
Sub 1	H H H B B B F R	H H H B B F R	H H B B B B B B F R	H H B B F R	н н н н н н н н н н н н н н	H H H B B B B F R	H H B B B F R
Sub 2	Н Н Н В В В В В В В В В В В В В	H H H B B B B B F R	H H B B B R R	H H H B B B B B B B B R R R	H H B B B F R	H H B B B R F	H H H B B B B H R

Fig. 19

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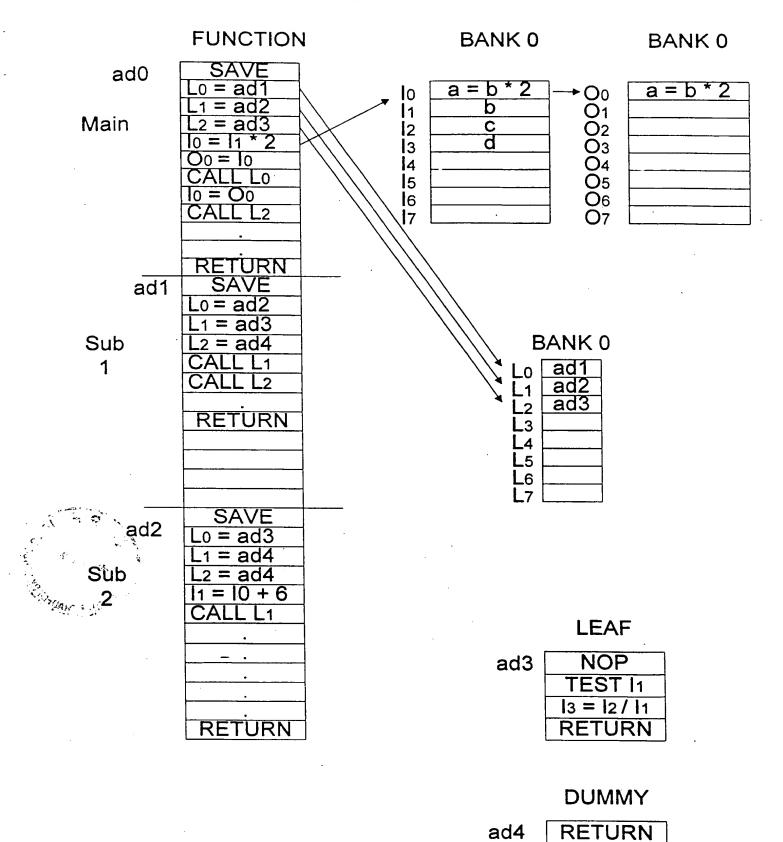
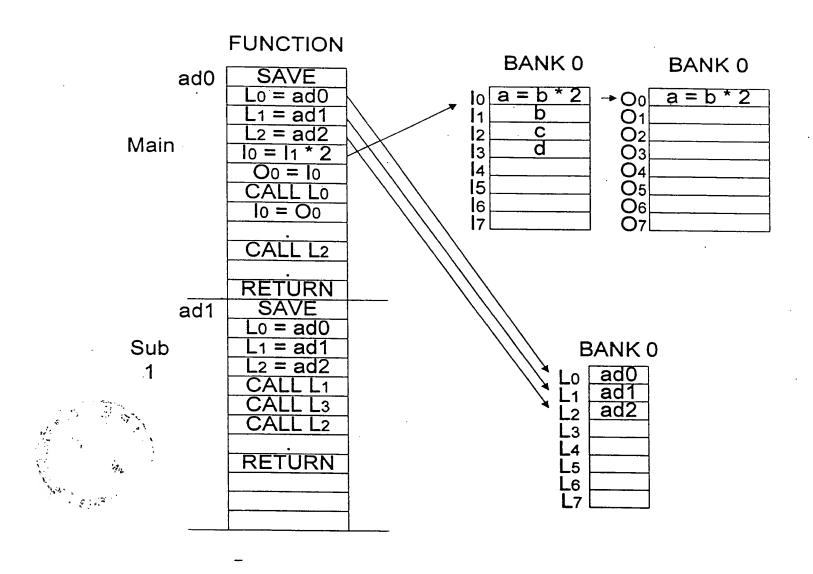


Fig. 20



ad2 NOP
TEST Io
I3 = I2 / I1
RETURN

Fig. 21

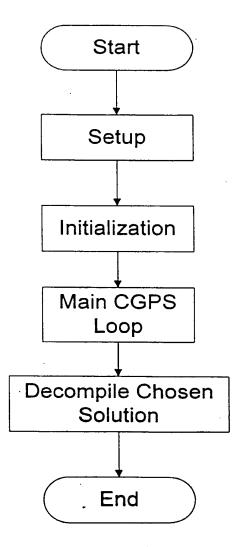
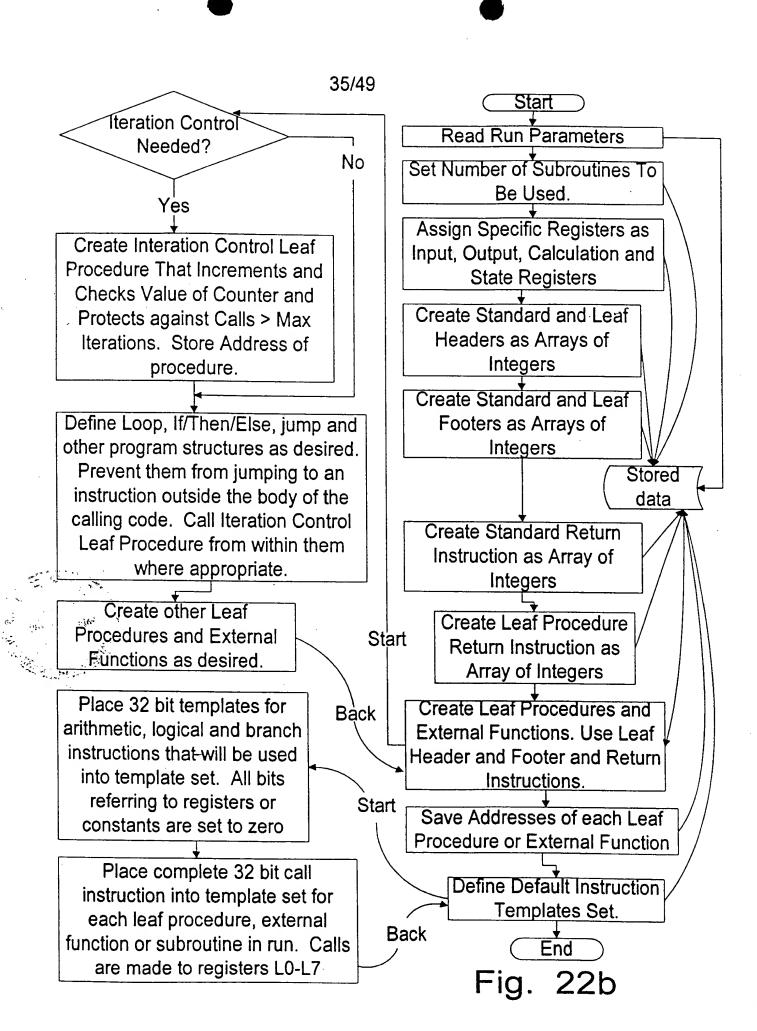
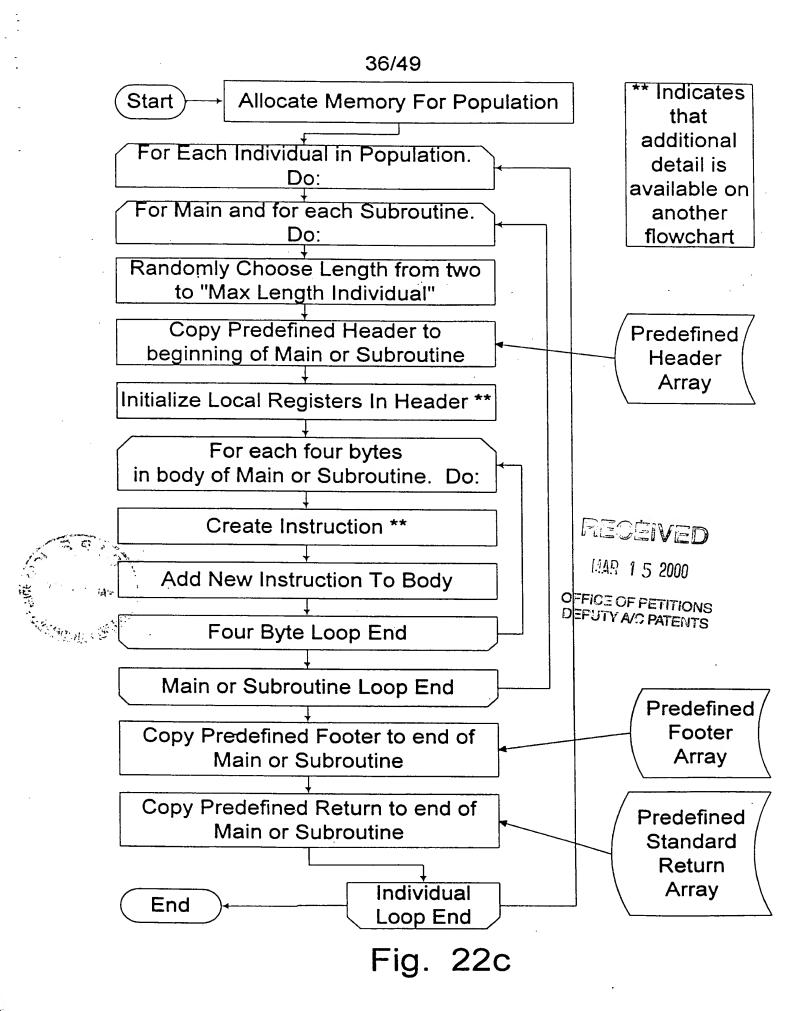
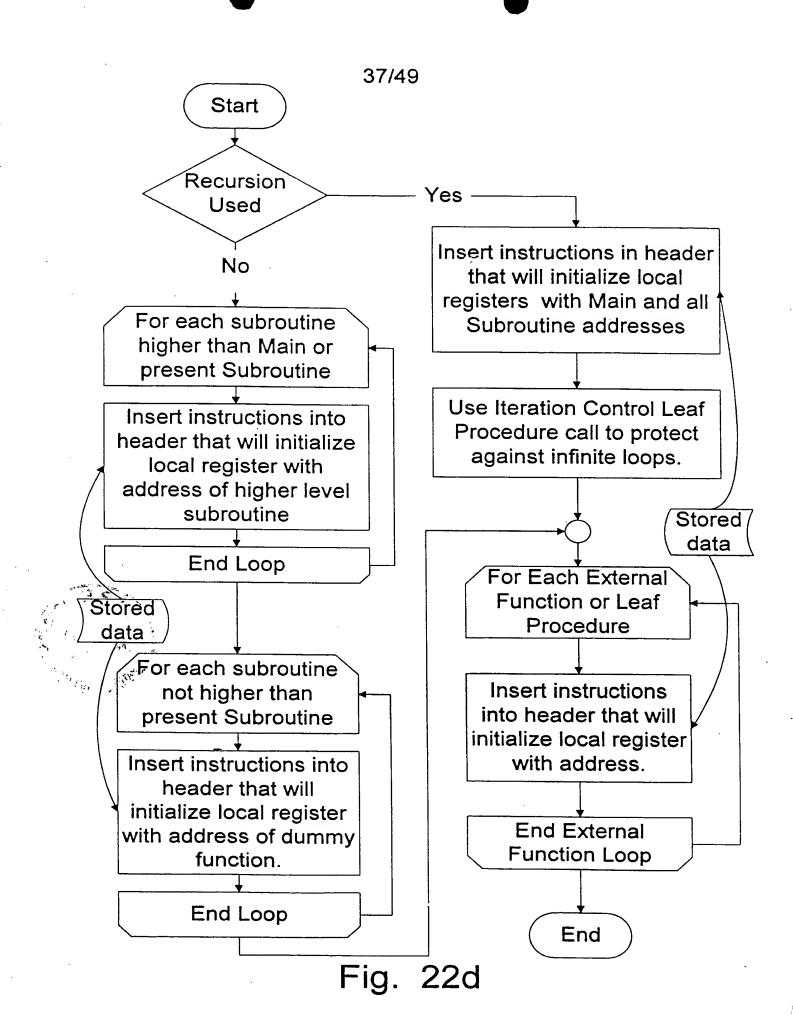


Fig. 22a







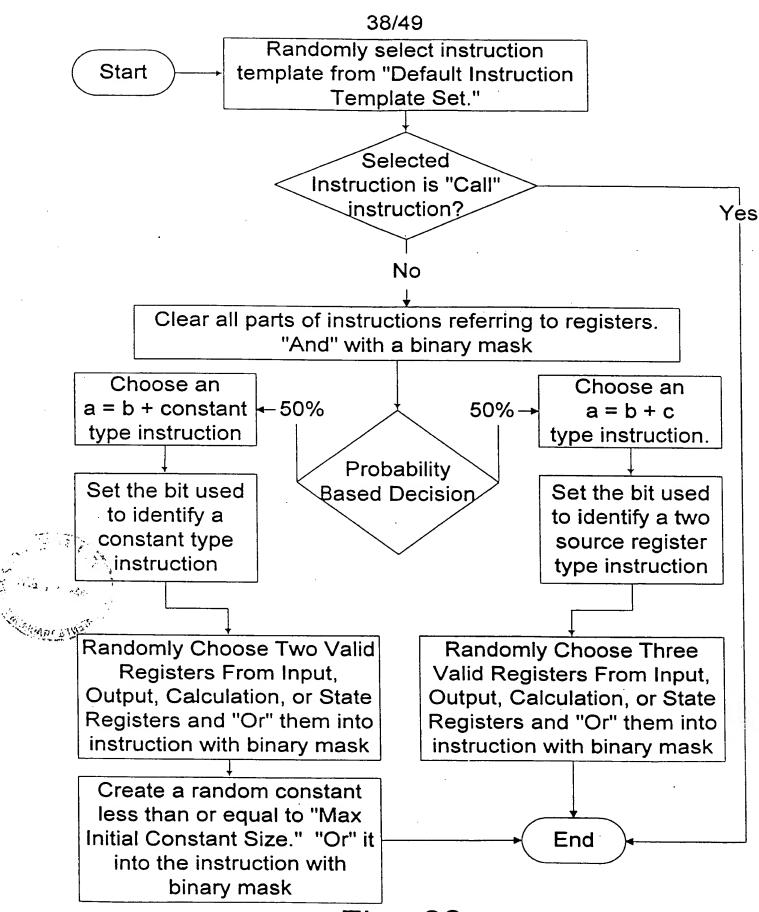
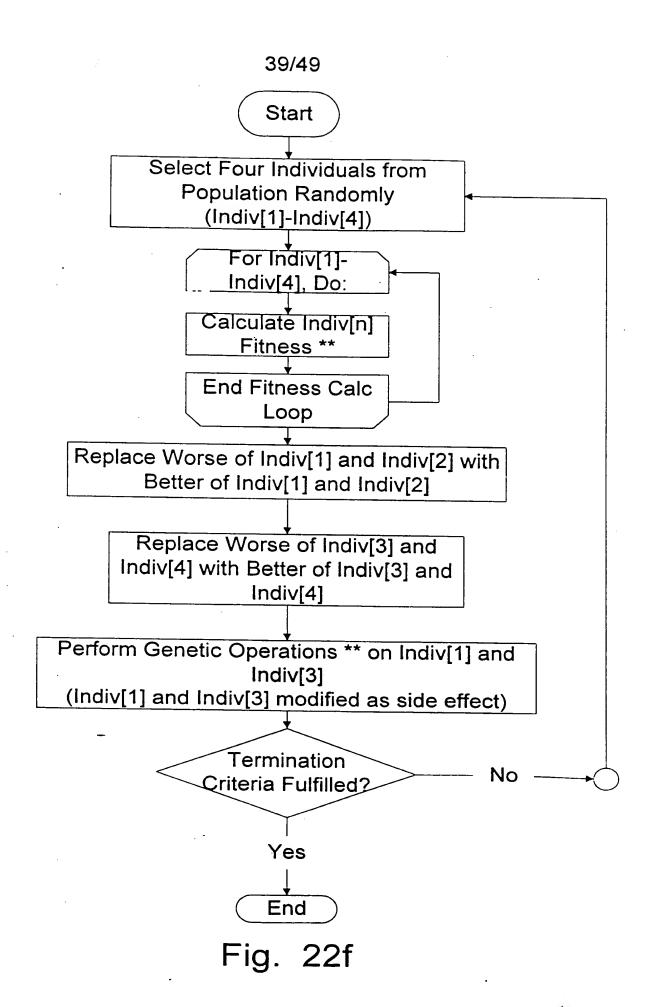


Fig. 22e



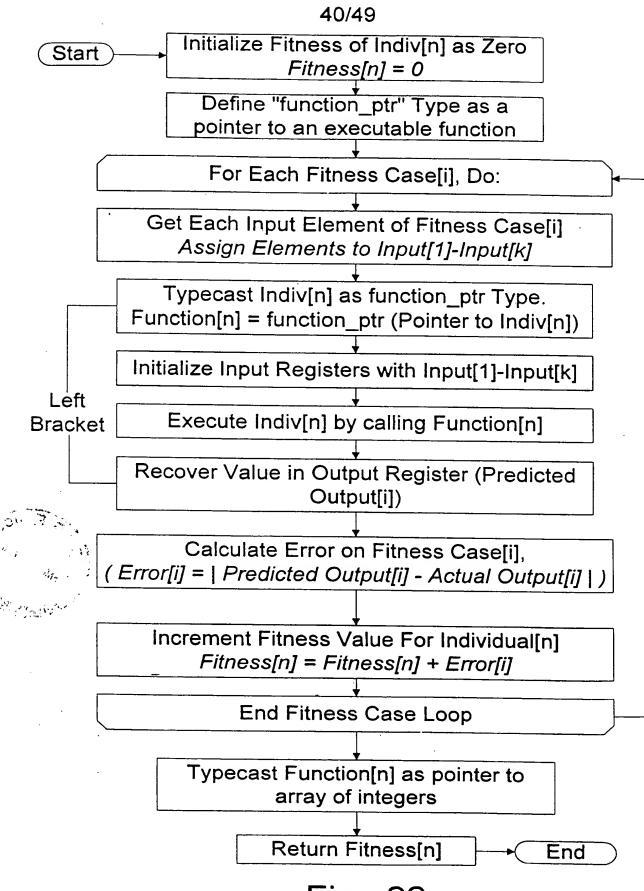


Fig. 22g

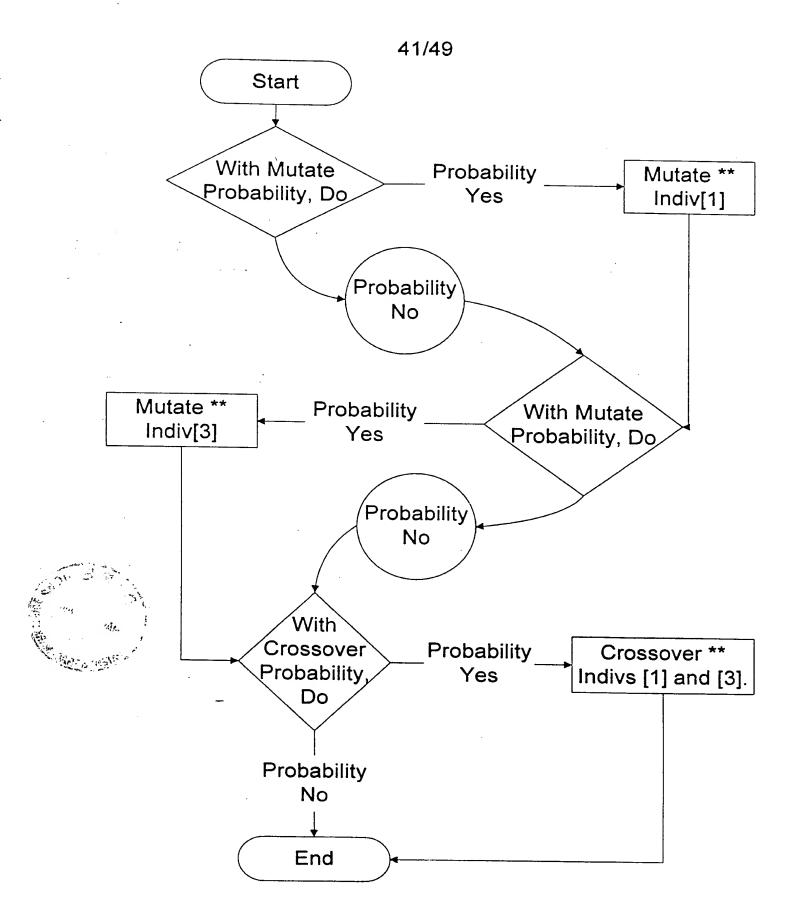


Fig. 22h

